

# JESUS MANCILLA

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## WORK EXPERIENCE

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### Argomai

Co-founder & AI Solutions Lead

Jan 2025 - Present

- Own enterprise architecture for multiple AI initiatives, defining domain models, service boundaries, data governance, and NFRs to support highly scalable customer-facing products.
- Partner with executives to translate business vision into technical roadmaps; created shared architectural vision that aligns GenAI/ML technologies with business objectives.
- Lead the design and implementation of complex systems, including vector databases, retrieval pipelines, reusable AI component library (embeddings, prompt templates, orchestration SDK), and autonomous agents using LLMs.
- Translate client needs into technical roadmaps, applying abstraction, reuse, and modularization principles to scale ML solutions.

### Meta

Senior Quant User Experience Researcher

Jan 2024 - Jan 2025

- Developed and implemented a hybrid machine learning classifier for open-ended responses, utilizing clustering analysis, multi-agent chain-of-reasoning, human-in-the-loop feedback, and few-shot learning, significantly reducing analysis time.
- Led the development of Python-based analytical tools to streamline survey data analysis, enabling efficient processing and supporting fellow researchers across multiple projects.
- Merged behavioral data from editor logs and in-app surveys, employing data science and machine learning methodologies to produce comprehensive, data-driven insights.

### Roku Inc.

Senior User Experience Researcher

Jan 2021 - Nov 2023

- Spearheaded the creation of an AI-powered indexed database of Roku's UX and CI research, enhancing data accessibility and leveraging AI techniques to improve search capabilities across the organization.
- Developed the Modular Survey Analysis System, integrating machine learning algorithms for generating detailed reports on survey data, including statistical analysis and NLP-based categorization of open-ended responses.
- Led quantitative and qualitative research on physical devices, deriving insights through behavioral log analysis from over 70 million devices to inform product development.

### Walmart Global Tech

Senior User Experience Researcher

Aug 2019 - Nov 2020

- Orchestrated comprehensive data analytics projects for Sam's Club's mobile app using Tableau, establishing key performance metrics to guide strategic enhancements.
- Pioneered a data-centric approach, integrating user interaction data with business metrics to inform and transform the user experience.
- Presented synthesized research findings to a diverse group of stakeholders, including product managers, designers, and executives, influencing the user experience strategy and design decisions.

### Scrapworks inc.

Data Scientist

Sep 2017 - Aug 2019

- Spearheaded a successful deep learning project that accurately forecasted commodities futures, yielding a 60% reduction in prediction error.
- Initiated an NLP-based merchandise classification project, contributing to a patent application and aiding strategic business decision-making.
- Created an interactive dashboard to visualize and filter 20 years of sales data, driving a 30% sales growth.

### Suggestic

Senior User Experience Researcher

Dec 2016 - Sep 2017

- Executed data-driven testing and analysis for new app features, ensuring optimal integration and alignment with user needs and business objectives.
- Designed and developed advanced app prototypes, leveraging analytics to inform rapid iterations and feature enhancements.

### Stanford University

User Experience Researcher

May 2016 - Nov 2016

- Conducted pioneering research on stress detection using machine learning algorithms, collecting and analyzing over 150 hours of car, biometric, and video data.
- Contributed to the development of algorithms with 90% accuracy in stress detection.
- Authored and contributed to research papers on automotive UI and pedestrian interactions, enhancing the academic discourse in UX design.

### ITAM

User Experience Researcher

Aug 2014 - May 2016

- Created custom data visualizations and analyzed psychophysiological signals, identifying user behavior patterns using machine learning techniques.
- Crafted personalized user experience solutions for interactive technologies, spanning wearable, mobile, and web platforms.

SELECTED MACHINE LEARNING PROJECTS

- Research Librarian Project:** Developed an AI-powered index for UX and CI research, enhancing data retrieval with an innovative indexing algorithm, vector stores, and semantic retrieval.
- Modular Survey Analysis System:** Created an end-to-end ML report generator for survey analysis, integrating context-aware logic and autonomous clustering algorithms, improving efficiency and resource utilization.
- Customer Support Bot:** Defined reference architecture for LLM-augmented support chat, integrating LLMs, Retrieval-Augmented Generation, and observability stack.

PUBLICATIONS

Ramos-Rivera, R. E., Santana Mancilla, P. C., Garcia-Mancilla, J., & Gaytán-Lugo, L. S. (2025). Language models in education: Generative AI to optimize teacher performance analysis. *InnovAcademica*, 1(2), 74–85.

Ramos-Rivera, R. E., Garcia-Mancilla, J., Cárdenas-Villa, G. E., & Santana-Mancilla, P. C. (2024). Towards Improving Teacher Performance Assessment through Human-Centered AI-Powered Survey Analysis: An Approach Using Large Language Models (LLM). *Avances en Interacción Humano-Computadora*, 9(1), 261-264.

Baltodano, Sonia, Jesus Garcia-Mancilla, and Wendy Ju. "Eliciting Driver Stress Using Naturalistic Driving Scenarios on Real Roads." In *Proceedings of the 10th International Conference on Automotive User Interfaces and Interactive Vehicular Applications*, pp. 298-309. ACM, 2018.

Currano, Rebecca, So Yeon Park, Lawrence Domingo, Jesus Garcia-Mancilla, Pedro C. Santana-Mancilla, Victor M. Gonzalez, and Wendy Ju. "¡Vamos!: Observations of Pedestrian Interactions with Driverless Cars in Mexico." In *Proceedings of the 10th International Conference on Automotive User Interfaces and Interactive Vehicular Applications*, pp. 210-220. ACM, 2018.

J. Garcia-Mancilla, J. E. Ramirez-Marquez, C. Lipizzi, G. T. Vesonder, and V. M. Gonzalez, "Characterizing negative sentiments in at-risk populations via crowd computing: a computational social science approach," *International Journal of Data Science and Analytics*, Jun. 2018.

Garcia-Mancilla J., Martinez V.R., Gonzalez V.M., Fajardo A.F. (2016) Social Influence and Emotional State While Shopping. In: Nah FH., Tan CH. (eds) *HCI in Business, Government, and Organizations: eCommerce and Innovation. HCIBGO 2016. Lecture Notes in Computer Science*, vol 9751. Springer, Cham.

Garcia-Mancilla J., Gonzalez V.M. (2016) Stress Quantification Using a Wearable Device for Daily Feedback to Improve Stress Management. In: Zheng X., Zeng D., Chen H., Leischow S. (eds) *Smart Health. Lecture Notes in Computer Science*, vol 9545. Springer, Cham.

L. Ferrer, J. Garcia-Mancilla, V. M. Gonzalez, S. Bermudez, P. Bleier and C. Prieto, "Using augmented reality in urban context: Georeferenced system for business localization using Google Glass," *2015 IEEE First International Smart Cities Conference (ISC2)*, Guadalajara, 2015, pp. 1-6. doi: 10.1109/ISC2.2015.7366157.

González V.M., García J., Muro B. (2015) Searching for Information: Comparing Text vs. Visual Search with Newspapers Websites. In: Yamamoto S. (eds) *Human Interface and the Management of Information. Information and Knowledge Design. HIMI 2015. Lecture Notes in Computer Science*, vol 9172. Springer, Cham.

Montes R., Garcia-Mancilla J. (2015), Programas psicoeducativos para el autocontrol de la diabetes de corte cognitivo-conductual In G. Solano, A. Del Castillo, R. M. E. Guzman, M. Garcia, A. Romero (Ed.), *Diabetes y Educacion, de la teoria a la practica* (119-146). Ciudad de Mexico: Planeacion y Servicio Editorial S.A.

Garcia-Mancilla J., Montes-Delgado R., Santana-Mancilla P. Quality of Life (QoL) and self-efficacy on elderly with diabetes mellitus type 2: Study in the Mexican State of Colima. *Rendez-Vous 2012*, Thunder Bay, Canada, Octubre 2012.

Montes R., Garcia-Mancilla J., Oropeza-Tena R. Self-control techniques for the right management of diabetes mellitus type 2 (DM2) in adults. *Rendez-Vous 2012*, Thunder Bay, Canada, Octubre 2012.

SKILLS

- Programming Languages:** Advanced proficiency in Python, R, SQL, JavaScript/TypeScript
- Machine Learning:** Expertise in machine learning, deep learning, NLP, LLMs, RNNs, transformers, prompt engineering
- Data Analysis:** Statistical analysis, data visualization, predictive modeling, trend analysis, KPI development
- Databases:** Experience with Vector Databases, building automation pipelines, data processing, workflow optimization
- Frameworks:** FastAPI, LangChain/LangGraph, React/Next.js, TensorFlow, PyTorch, Scikit-learn
- Languages:** Fluent in Spanish and English

EDUCATION

<b>Instituto Tecnologico Autonomo de Mexico</b>	
M.S. in Computer Science (HCI/AI Focus)	2014 - 2016
<b>Universidad de Colima</b>	
B.A. in Psychology	2009 - 2013